

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

In re: Methyl Tertiary Butyl Ether ("MTBE")
Products Liability Litigation

**Master File No. 1:00 - 1898
MDL 1358 (SAS)
M21-88**

This Document Relates to:

*New Jersey Department of Environmental
Protection, et al. v. Atlantic Richfield Co., et al.*
No. 1:08-cv-00312-SAS

**DECLARATION OF ANTHONY BROWN IN SUPPORT OF PLAINTIFFS'
CONSOLIDATED REPLY TO DEFENDANTS' OPPOSITIONS
TO PLAINTIFFS' MOTION FOR APPROVAL OF THE
PROPOSED CITGO JUDICIAL CONSENT ORDER**

I, Anthony Brown, declare:

QUALIFICATIONS

1. I am an expert in groundwater hydrology, contaminant fate and transport, remediation of contaminated sites, and drinking water treatment. My experience includes, amongst other things, contaminant site investigations, hydrogeologic characterization studies, the fate and transport of contaminants, their regulatory standards, other regulations pertaining to contamination of groundwater, and the design, planning, permitting, costing, and implementation of remedial actions, aquifer restoration programs, and drinking water treatment systems.

2. I am the CEO and Principal Hydrologist at Aquilogic, Inc. I am an expert in hydrology and remediation of contaminated sites with over 25 years of experience in, amongst other fields, contaminated site investigations, hydrogeological characterization, design and analysis of remedial actions, and regulatory standards. I have conducted and managed hazardous waste site investigations, including sites with multiple responsible parties, complex hydrogeology and fate and transport, fractured rock, multiple contaminants, and commingled plumes. This work has included Phase 1 environmental site assessments, detailed Phase 2 characterization or Remedial Investigation (RI) studies, groundwater flow and solute transport modeling, Preliminary Endangerment Assessments, Human Health Risk Assessments, remedial system feasibility studies (FS), remediation system design, and remedy implementation. My work frequently requires the use of statistics. A true and correct copy of my curriculum vitae is attached hereto as Exhibit A.

BACKGROUND

3. I have been retained by legal counsel for plaintiffs New Jersey Department of Environmental Protection (NJDEP), The Commissioner of the NJDEP, and The Administrator of the New Jersey Spill Compensation Fund (collectively "the plaintiffs") to testify concerning gasoline releases, particularly those containing the fuel oxygenates methyl tertiary butyl ether

(MTBE) and tertiary butyl alcohol (TBA), and their impact on groundwater resources in New Jersey.

4. In particular, I have been asked to review environmental data and other pertinent information for 19 “trial sites” located within the State of New Jersey. For the ten plaintiff-selected trial sites, I have prepared a Site Summary Report that documents, amongst other things, the site setting, historical environmental actions at the site, the hydrogeology of the site, the contaminant conditions at the site, contaminant fate and transport, a site conceptual model, data gaps at the site, recommendations regarding additional investigation and remediation activities required at the site, the threat the contamination poses to surface water resources and water supply wells, and my opinions. For the nine defendant-selected trial sites, I have prepared memoranda that contain similar information to the Site Summary Reports. However, for the defendant-selected trial sites, the amount of environmental data and other pertinent information is substantially less than that for the plaintiff-selected trial sites; hence, complete Site Summary Reports were not justified for these trial sites.

5. My testimony will also include, where appropriate, the scope and costs of additional investigation, remediation and restoration programs at the trial sites. Such cost estimates were prepared for all ten plaintiff-selected trial sites and one of the defendant-selected trial sites.

6. My testimony will also include the characteristics and environmental fate of the MTBE, TBA and other contaminants of concern (COCs) (e.g. benzene), the procedures for the investigation of soil and groundwater contamination, and remedial approaches to address the contamination.

7. As part of the overall litigation, my testimony may also include, but may not be limited to, the overall threat that MTBE and/or TBA pose to water resources and water supply wells throughout the State of New Jersey, the costs to address this contamination, and a chronology for MTBE that details the history of MTBE use, oil industry knowledge of the threat

MTBE poses to water resources, and regulatory developments with respect to MTBE and other fuel oxygenates.

RESPONSE TO DECLARATION OF ROBERT POWELL

8. I have prepared this declaration in response to one issue raised in the declaration of Robert L. Powell, Ph.D. dated February 27, 2014. Dr. Powell has been retained as an expert by defendant BP Products North America, Inc. and Atlantic Richfield Company (collectively “BP”) in the matter of *New Jersey Department of Environmental Protection, et al vs Atlantic Richfield Co., et al* (Master File No. 1:00-1898, MDL No. 1358 [SAS] No. 08 Civ. 00312). His declaration has been prepared in support of BP’s opposition to *Plaintiff’s Motion to Approve the Judicial Consent Order as to Citgo Petroleum Corporation*, dated February 7, 2014.

9. Plaintiffs have used a MTBE concentration of 700 ppb to identify leaking underground storage tank (LUST) sites in New Jersey that would require remediation and restoration similar to that proposed for the plaintiff-selected trial sites. Using this concentration, Plaintiffs have identified 498 LUST sites that would require such remediation and restoration.

10. Dr. Powell states in paragraph 18 of his declaration that “*the average concentrations at the ten Plaintiff trial sites is 9,238 ppb MTBE*” and that the 700 ppb threshold selected by Plaintiffs as a surrogate for the 498-site list to is erroneous. However, MTBE concentrations in groundwater at leaking underground storage tank (LUST) sites, including the trial sites, typically range over six orders of magnitude (e.g. 0.1 to 100,000 ppb). When a universe of data, and a particular dataset, covers such a wide range, and is of limited size (e.g. ten or 19 data points), it is more statistically appropriate (and more representative of all the data) to use a median value instead of an average or mean value. That is particularly true when, as here, there is a significant outlier (outlying data point) in the dataset which is incorporated into, and greatly skews, the average concentration value calculation. The most recent maximum MTBE concentration at one of the trial sites indicated in my expert report is 62,300 ppb. The next highest most recent maximum MTBE concentration is 14,400 ppb, and the most recent maximum MTBE concentration at six of the ten Plaintiffs’ Trial Sites is less than 1,000 ppb.

11. In cases where there are significant outlying data points in a set of data, the dataset does not exhibit a normal distribution and is skewed, and it is more statistically appropriate (and more representative of all the data) to use a median value instead of a mean value. For the plaintiff-selected trial sites, the median MTBE concentration is 726 ppb (see Exhibit F to the Powell declaration). That is, five sites have most recent maximum MTBE concentrations below 726 ppb, and five sites have most recent maximum MTBE concentrations above 726 ppb. Therefore, the selection of 700 ppb as a concentration above which a site would require remediation and restoration similar to that proposed for the trial sites is reasonable.

12. Plaintiffs have applied the average remediation and restoration costs (\$4.55 million) from the plaintiff-selected trial sites to the 498 LUST sites in New Jersey. The median remediation and restoration cost for the ten plaintiff-selected trial sites is \$5.13 million; that is, \$0.58 million more than the average. The median and average costs are consistent because the data set for remediation and restoration costs ranges over only one order of magnitude (\$776,830 to \$7,901,398) versus the almost four orders of magnitude range for MTBE concentration (11 to 62,300); thus, there are no outliers in the costs data. Therefore, the use of an average is reasonable and conservative for costs, but not for MTBE concentrations.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

I execute this declaration on March 10, 2014 in Orange County, California.

A handwritten signature in black ink, appearing to read 'A. Brown', is written over a horizontal line.

ANTHONY BROWN

EXHIBIT A



245 Fischer Avenue, Suite D-2
Costa Mesa, CA 92626, USA
Tel. +1.714.770.8040
Web: www.aquilologic.com

CURRICULUM VITAE

July 2013

Anthony Brown

CEO and Principal Hydrologist

mobile: +1.949.939.7160

email: anthony.brown@aquilologic.com



Disciplines

Hydrology, Hydrogeology, Water Resources, Water Quality, Water Supply, Drinking Water Treatment, Contaminant Source Identification, Contaminant Fate and Transport, Soil and Groundwater Remediation, Environmental Liability Management, Legal and Regulatory Strategy.

Education

M.Sc. Engineering Hydrology, Imperial College London, 1989

D.I.C. Postgraduate diploma in Civil Engineering, Imperial College London, 1988

B.A. Geography, King's College London, 1985

Professional Experience

Anthony is a versatile and proficient environmental professional with over 20 years of experience in hydrology, hydrogeology, water quality, fate and transport of contaminants, groundwater remediation, regulatory strategy, water resources evaluation, and water supply engineering. He has conducted and managed numerous hazardous waste site investigations, including sites with multiple potentially responsible parties (PRPs), complex hydrogeology and fate and transport, fractured rock, multiple contaminants, and co-mingled plumes. This work has included detailed Remedial Investigation (RI) or Phase II characterization studies, groundwater flow and solute transport modeling, Preliminary Endangerment Assessments, Human Health Risk Assessments, and remedial feasibility studies (FS), remedial system design and implementation. He has also used environmental economic analysis to support remedial decision-making. He has been involved in the design, testing and permitting of drinking water treatment systems for impaired (contaminated) water sources. In addition, Anthony has also conducted liability assessments for the acquisition of major property portfolios.

Anthony has provided expert services to many prominent environmental law firms, the California Attorney General's Office, the New Jersey Attorney General's Office, the Orange County District Attorney's Office, the Sacramento County District Attorney's Office, and numerous City Attorneys' Offices. Through his work for water utilities impacted by gasoline constituents (e.g. MTBE, TBA



Curriculum Vitae: Anthony Brown

December 2012

and 1,2-DCA), chlorinated solvents (e.g. PCE, TCE, 1,1,1-TCA), solvent stabilizers (e.g. 1,4-dioxane), chlorofluorocarbons (e.g. Freon 11, 12 and 113), 1,2,3-TCP, the rocket propellants perchlorate and NDMA, and hexavalent chromium and other metals, Anthony has become a recognized expert in the fate, transport, and remediation of these compounds, and the protection of source waters from contamination by such recalcitrant chemicals. Amongst other technical areas of expertise, he has also provided expert advice related to the environmental impact of oil field contaminants and their mitigation, and the source identification and mitigation of bacteria and fecal contamination in marine waters.

Through his extensive experience on "high-profile" projects, Anthony has developed an excellent working relationship with private and public sector clients, Federal, State and local elected officials and government agency staff, the legal community, professional organizations, non-profit environmental organizations, and his colleagues in the environmental and water resources professions. He has also briefed White House staff, federal, State and local elected officials and regulators, independent commissions, professional groups, academic institutions, and the news media (including CBS 60 Minutes, National Public Radio [NPR] and local newspapers) on the impact of fuel oxygenates, chlorinated solvents, rocket propellants, hexavalent chromium, and bacteria on water quality.

In addition to his teaching experience, Anthony has prepared over 2000 written project reports, and has presented and published numerous articles on a variety of environmental and water resources issues. Anthony has also briefed Federal, State and local elected officials and agency staff on the impact of fuel oxygenates, chlorinated solvents, rocket propellants, metals, oil field activities, and bacteria on water quality, and has appeared on National and Local news shows.

Beyond his US experience, Anthony has worked on projects in the United Kingdom, Ireland, Canada, Mexico, Costa Rica, Columbia, Ecuador, Yemen, Egypt and Nepal.

Expert Consulting and Witness Services

- New Jersey Department of Environmental Protection (NJDEP) vs. Sunoco et al (State-wide assessment of impact and damages associated with MTBE and TBA releases in New Jersey) – US Federal Court, Southern District of New York (deposition, trial pending);
- Orange County Water District (OCWD) vs. Sabic Innovative Plastics et al (Chlorinated solvent, 1,4-dioxane and perchlorate contamination of groundwater resources from various sites in Orange County, California) – California Superior Court, Orange County (deposition, trial pending);



Curriculum Vitae: Anthony Brown
December 2012

- Commonwealth of Puerto Rico vs. ExxonMobil et al (Territory-wide assessment of impact and damages associated with MTBE releases in New Jersey) – US Federal Court, Southern District of New York (deposition pending);
- Orange County Water District (OCWD) vs. Unocal et al (MTBE and TBA contamination of groundwater resources from service station sites in Orange County, California) – US Federal Court, Southern District of New York (deposition, trial pending);
- Southern California Water Company vs. Aerojet General Corp. (TCE, perchlorate and NDMA contamination of drinking water supplies in Rancho Cordova, California) – California Superior Court, Sacramento District (deposition, settled);
- The City of Stockton Redevelopment Agency (RDA) vs. Conoco-Phillips et al (petroleum hydrocarbon contamination at former oil terminals) – California Superior Court (deposition, settled);
- PK Investments vs. Barry Avenue Plating (hexavalent chromium and solvent contamination of soil and groundwater) - California Superior Court, Los Angeles District (deposition, settled);
- The City of Modesto vs. Vulcan Chemical et al (perchloroethylene [PCE] contamination of drinking water wells and groundwater resources in Stanislaus County, California) – California Superior Court, San Francisco District (deposition, trial testimony);
- City of Santa Monica, California vs. Shell et al (MTBE contamination of drinking water supplies) – California Superior Court, Orange County District (deposition, settled);
- State of California vs. Joint Underwriters (perchlorate and solvent contamination at the Stringfellow Acid Waste disposal pits in Glen Avon) – California Superior Court (deposition);
- Community of Broad Creek, North Carolina vs. BP Amoco et al (MTBE, benzene and 1,2-DCA contamination of private water supply wells) – North Carolina Superior Court (deposition);
- South Tahoe Public Utility District, California vs. ARCO et al (MTBE contamination of drinking water supplies) - California Superior Court, San Francisco (deposition, trial testimony);
- Private well owners in 18 reformulated gasoline (RFG) states vs. various oil companies (class action related to MTBE) - US Federal Court, New York District (deposition, class certification hearing);
- Individual plaintiffs vs. Lockheed Corporation (TCE and perchlorate contamination of drinking water supplies in Redlands, California) – California Superior Court, Los Angeles District (deposition, settled);
- City of Norwalk vs. Five Point U-Serve et al (1,2-DCA contamination of a municipal drinking water well) – California Superior Court (deposition, case dismissed);
- Forest City Corp. vs. Prudential Real Estate (PCE contamination of soil and groundwater) – California Superior Court, Los Angeles District (deposition, trial testimony);
- Consolidated Electrical Distributors (CED) vs. Hebdon Electronics et al (chlorinated solvent contamination in fractured granite) - California Superior Court, North San Diego District (deposition, trial testimony);



Curriculum Vitae: Anthony Brown

December 2012

- Southern California Water Company vs. various parties (water rights petition and adjudication for the American River, Sacramento, California) – State Water Resources Control Board, Sacramento.
- The City of Santa Monica, California vs. ExxonMobil Corporation (MTBE contamination of drinking water supplies) – California Superior Court (designated, settled);
- The town of Glenville, California vs. various parties (MTBE contamination of drinking water supplies in Kern County, California) - California Superior Court (designated, settled);
- Great Oaks Water Company vs. Chevron and Tosco (MTBE contamination of drinking water supplies in San Jose, California) - California Superior Court (designated, settled);
- Orange County District Attorney's Office vs. ARCO et al (Underground Storage Tank [UST] violations, and MTBE contamination of soil and groundwater) - California Superior Court (designated, settled);
- Cambria Community Services District (CCSD) vs. Chevron et al (MTBE impact to drinking water supplies) in San Luis Obispo County, California - California Superior Court (designated, settled);
- Los Osos Community Services District (CCSD) vs. Chevron et al (MTBE impact to drinking water supplies) in San Luis Obispo County, California - California Superior Court (designated, settled);
- The town of East Alton, Illinois vs. various parties (MTBE contamination of drinking water supplies) – Illinois Superior Court, Jefferson County (designated, settled);
- The City of Dinuba vs. Tosco et al (MTBE contamination of groundwater resources) - California Superior Court (designated, settled);
- Stella Stephens vs. Bazz-Houston et al (chlorinated solvent contamination at an active metal finishing facility in Garden Grove, California) - California Superior Court (designated, settled);
- Communities for a Better Environment (CBE) vs. Chrome Crankshaft (hexavalent chromium and TCE contamination beneath a chrome plating facility and adjacent school) - California Superior Court (designated, settled);
- California Attorney General's Office vs. Unocal (Natural Resource Damage Assessment [NRDA] at a former oil field in the central coast of California) - California Superior Court (designated, settled);
- Phillips Petroleum Corporation vs. private property owner (contamination from a former oil well in Signal Hill, California) - California Superior Court (designated, settled);
- Mobil Oil Corporation vs. private property owner (contamination from a former bulk fuel plant in the Bay Delta area) – California Superior Court (designated, settled); and
- Mobil Oil Corporation vs. terminal operator (contamination from a former bulk fuel plant in Monterey area) – California Superior Court (designated, settled).



Curriculum Vitae: Anthony Brown

December 2012

General Project Experience

Anthony has acted as the Principal in Charge, Project Manager, Quality Assurance (QA) Manager and/or Principal Review for the following ongoing or recently completed projects:

Petroleum Hydrocarbons

- Assessment of the Effectiveness of Site Investigation and Remediation Activities, Investigation of Off-Site Groundwater Contamination, and Development of Remedial Programs (and Costs) at "Bellwether" Trial Sites - Orange County Water District
- Evaluation of Contaminant Conditions and Prior Site Investigation and Remediation Activity, Implementation of Off-site Investigations, and Development of Remedial Programs and Associated Costs at Trial Sites in Puerto Rico – Commonwealth of Puerto Rico
- Assessment of Site Investigation and Remediation Activities, Investigation of Off-Site Groundwater Contamination, and Development of Remedial Programs (and Costs) at Trial Sites – New Jersey Department of Environmental Protection (NJDEP)
- Development of a Remediation Approach and Costs for Soil and Groundwater Contamination at Two Former Petroleum Terminals – Stockton Redevelopment Agency
- Assessment of the Nature of Contamination and the Costs to Address this Contamination at a Former Municipal Landfill in San Diego County – Confidential Client
- Evaluation of Contaminant Sources, and the Fate and Transport of MTBE, 1,2-DCA and Benzene to Numerous Private Water Supply Wells in the Community of Broad Creek, North Carolina
- Assessment of the Effectiveness of Site Investigation and Remediation Activities at ARCO and Thrifty Service Stations Throughout Orange County - Orange County District Attorney's Office
- Evaluation of Contaminant Sources, Fate, Transport and Impact of MTBE and TBA to Public Water Supplies, and the Costs to Treat these Contaminants, in the town of East Alton, Illinois
- Court Appointed Consultant to Develop Site Investigation Programs at 35 Thrifty Service Stations in Orange County
- Evaluation of Sources of MTBE Threatening Public Water Supplies in the town of Dinuba, California
- Impact and Mitigation of Oil Field Contaminants at the Belmont Learning Center – Los Angeles Unified School District (LAUSD) - Belmont Commission
- Investigation, PRP Identification, Remediation and Restoration of Municipal Well Fields Impacted by Methyl-tertiary Butyl Ether (MTBE) Contamination – City of Santa Monica (Charnock Well Field), South Lake Tahoe Public Utility District (STPUD), Santa Clara Valley Water District (SCVWD), Great Oaks Water Company
- Oversight of Oil Company Investigation and Remediation Programs in Honolulu Harbor, Hawaii – US Environmental Protection Agency (USEPA)



Curriculum Vitae: Anthony Brown

December 2012

- Assessment of Oil Field Contaminants in Relation to High Incidences of Leukemia and non-Hodgkins Lymphoma at a High School in Southern California – Confidential Client
- Evaluation of Fuel Releases and Their Impact upon Groundwater Resources at Service Stations, Bulk Plants, Fuel Terminals and Refineries Throughout California – Confidential Client
- Complete Restoration of Municipal Water Supply Wells Contaminated with MTBE – City of Santa Monica (Arcadia Well Field) and ExxonMobil Corporation
- Preliminary Environmental Assessment (PEA) at the Hull Middle School - located on a former oil field and landfill - Torrance Unified School District (TUSD), California
- Oversight of Investigation and Remediation Activities for a MTBE Release at a Service Station and the Potential Impact on a City's Water Distribution System – City of Oxnard, California
- Assessment of MTBE and TBA Contamination of Drinking Water Wells from Releases at Gasoline Stations – Town of East Alton, Illinois
- Investigation of MTBE Contamination of Water Supply Wells and Other Petroleum Hydrocarbon Contamination at a Marine Fueling Depot in Catalina – Southern California Edison
- Impact of MTBE Releases at Service Stations and a Bulk Fuel Terminal on Drinking Water Wells and Groundwater Resources - City of Dinuba, California
- Identification of UST Compliance Penalties and Contamination of Soil and Groundwater by MTBE and Other Petroleum Products at Gasoline Service Stations - Orange County District Attorney (OCDA), California
- Oversight of a Court-ordered Plume Delineation Program at Gasoline Service Stations in Orange County, California – OCDA, California
- Oversight and Investigation of Remediation of MTBE Contamination Impacting Drinking Water Supplies in the Towns of Cambria and Los Osos/Baywood Park, California – Cambria Community Services District (CCSD), Los Osos Community Services district (LOCSD), Cal-cities Water Company
- Assessment of the Impact of an MTBE Release on Water Supply Wells, Sewers and a Wastewater Treatment Plant – City of Morro Bay, California
- Investigation and Remediation of an MTBE Release in the Immediate Vicinity of a Drinking Water Supply Well - City of Cerritos, California
- Assessment of the Impact of Petroleum Hydrocarbon Contamination from a Wolverine Pipeline Release in Jackson, Michigan – Private Property Owner
- Investigation of Fuel Oil LNAPL and Hexavalent Chromium Contamination at a Former Clay Products Manufacturing Facility in Fremont, California – Mission Clay Products
- Assessment of the Impact of MTBE Releases on Water Supply Wells, and Oversight of Responsible Party (RP) Investigation and Remediation Activities - Soquel Creek Water District, California



Curriculum Vitae: Anthony Brown
December 2012

- MTBE Contamination of Private Drinking Water Supplies and Development of Water Supply Treatment and Replacement Alternatives – Glenville, California
- Assessment of the Impact of MTBE on Drinking Water Supply Wells in Santa Clara County, California – Great Oaks Water Company (GOWC)
- Assessment of Data Gaps and Research Needs Regarding MTBE Impact to Water Resources – UK Environment Agency
- Investigation and Mitigation of the Impact of Oil Field Contaminants on a Large Apartment Complex in Marina del Rey, Los Angeles, California – Confidential Client
- Investigation and Remediation of Methane and Hydrogen Sulfide as Part of the Redevelopment of a Former Oil Field in Carson, California - Dominguez Energy/Carson Companies
- Assessment of Methane and Petroleum Hydrocarbon Contamination at a Former Oil Field in Santa Fe Springs, California – General Petroleum
- Natural Resource Damage Assessment (NRDA) at the Guadalupe Oil Field, California - State of California (Department of Fish and Game [DFG], Oil Spill Prevention and Response [OSPR], Attorney General and Regional Water Quality Control Board [RWQCB])
- Assessment of the Impact of Oil Field Activities on Surface Water and Groundwater Resources in the Central Coast of California – State of California
- Groundwater Investigation and Remediation at Four Petroleum Terminals in Wilmington, Carson, and San Pedro, California - GATX
- Research into Technologies for Treatment of MTBE in Water - Association of California Water Agencies (ACWA) / Western States Petroleum Association (WSPA) / Oxygenated Fuels Association (OFA)
- Characterization and Remediation of a Hydrocarbon Release (including MTBE) from a Refined Product Pipeline in Fractured Bedrock in Illinois – Shell
- Investigation and Remediation of Petroleum Hydrocarbon Contamination Beneath a City Maintenance Yard and City Bus Yard – City of Santa Monica, California
- Investigation and Remediation of a Gasoline Release (including MTBE) in Fractured Bedrock Resulting From a Catastrophic Tank Failure – Intrawest Ski Resorts, California
- Assessment of LNAPL, Aromatic Hydrocarbon, and Chlorinated Solvent Contamination Beneath a Former Waste Disposal Facility in Santa Fe Springs, California – Confidential Client
- Investigation of Soil and Groundwater Contamination at a Fueling Facility at a Municipal Airport – City of Santa Monica, California
- Pipeline Leak Investigation and Remedial Design - Mobil Pipeline, Ft. Tejon, California
- Investigation of a Petroleum Release in Fractured Bedrock - Chevron, Julian, California
- Contribution of Multiple Sources to Groundwater Contamination – Mobil Oil Corporation, La Palma, California
- Forensic Assessment of a Gasoline Release – Mobil Oil Corporation, Santa Monica, California
- Investigation of a Diesel Fuel Release – General Petroleum, Point Hueneme, California



Curriculum Vitae: Anthony Brown

December 2012

- Service Station Investigations and Remediation (> 60 sites) - Mobil Oil Corporation, World Oil, Los Angeles County Metropolitan Transportation Authority (LACMTA), and Others
- Assessment of a Crude Release from a Former Pipeline - Mobil Oil, Gorman, California
- Remediation of 2,000,000 gallon (7,560 m³) LNAPL Spill - Gulf Strachan Gas Plant, Alberta

Chlorinated Hydrocarbons

- Assessment of the Effectiveness of Site Investigation and Remediation Activities, Investigation of Off-Site Groundwater Contamination, and Development of Remedial Programs (and Costs) at Solvent "Source Sites" in the South Basin Groundwater Protection Project (SBGPP) - Orange County Water District
- Project Management Consultant (PMC) for the Hazardous Substances Account Act (HSAA) Program (i.e. State-CERCLA) as part of the SBGPP – Orange County Water District
- Assessment of Conceptual Hydrogeology and the Sources of 1,2-DCA and PCE Contamination of a Large Public Water Supply Well – Confidential Client
- Investigation and Remediation of Chlorinated Solvent Contamination in Soil and Groundwater Beneath a Metal Finishing Facility in Inglewood, California – Bodycote Hinterliter and Joseph Collins Estate.
- Investigation and Remediation of Soil and Groundwater Contamination at a Former Wood Treating Facility – Port of Los Angeles
- Assessment of the Nature of PCE Releases from Dry Cleaning Facilities, the Impact Upon Groundwater Resources, and the Cost of Remediation – City of Modesto, California
- Investigation of Chlorinated Solvent Contamination in Soil, Groundwater and Drinking Water Supplies Beneath Various Facilities in Lodi, California – Confidential Client
- Investigation of TCE and Hexavalent Chromium Contamination at the Suva School in Montebello, California – Communities for a Better Environment
- Remediation of Chlorinated Solvents, Including Vinyl Chloride, in Soil and Groundwater Beneath a Former Aerospace Facility in West Los Angeles, California – Playa Vista Capital
- Assessment of Chlorinated Solvent and Hexavalent Chromium Contamination at an Active Metal Finishing Facility in the City of Garden Grove, California – Confidential Client
- Investigation and Remediation of Hexavalent Chromium and TCE Contamination at an Active Plating Facility in West Los Angeles – confidential client
- Contamination of Drinking Water Supplies by TCE and Perchlorate from an Aerospace Manufacturing Facility in Redlands, California – Individual Plaintiffs
- Investigation and Remediation of Hexavalent Chromium, TCE, and Gasoline LNAPL Contamination at an Active Plating Facility in Santa Fe Springs, California – Confidential Client
- Investigation and Remediation of Hexavalent Chrome and TCE Contamination at the Los Angeles Academy (formerly Jefferson) Middle School, Los Angeles, California – Jefferson Site PRP Group



Curriculum Vitae: Anthony Brown
December 2012

- Evaluation of Groundwater and Contaminant Conditions at an Active Municipal Landfill in Los Angeles County, California – Browning Ferris Industries (BFI)
- Investigation of Chlorinated Solvent Contamination in Groundwater Beneath a Municipal Airport – City of Santa Monica, California
- Resource Conservation and Recovery Act (RCRA) Facility Assessment and Closure for a Large Aerospace Facility in Hawthorne, California – Northrop Grumman Corporation
- Characterization of Complex Hydrogeology and Contaminant Fate and Transport (with Polychlorinated Biphenyls [PCBs] and Chlorinated Solvents) in Karstic Bedrock at a Site on the National Priority List (NPL) in Missouri – MEW PRP Steering Committee
- Design of a Groundwater Remediation Program for Chlorinated Solvent, Perchlorate and Other Contaminants Utilizing Existing Drinking Water Wells – San Gabriel Valley Water Company (SGVWC)
- Investigation of a Chlorinated Solvent Release in Fractured Bedrock – Consolidated Electrical Distributors, San Diego, California
- Contamination of Drinking Water Supplies by TCE from an Aerospace Manufacturing Facility in Redlands, California – Individual Plaintiffs
- Investigation of a Chlorinated Solvent Release at an Active Chemical Terminal - GATX, San Pedro, California
- Technical and Regulatory Assistance, and RP Oversight and Review, Chlorinated Solvent Contamination Beneath a Former Aerospace Facility – City of Burbank, California
- Investigation and Remedial Design for a Chlorinated Solvent Release at an Active Machine Shop – Mighty USA, Los Angeles, California
- Remediation of Chlorinated Solvents in Groundwater as Part of a Rail Freight Transfer Terminal Development - Port of Los Angeles, California
- Remedial Evaluation of PCE Contamination at a Former Scientific Instruments Manufacturing Facility – Forest City, Irvine, California
- Evaluation of a Chlorinated Solvent Release at a Dry Cleaners - Los Angeles City Attorney, West Los Angeles, California
- Assessment of a Chlorinated Solvent Release from Former Dry Cleaners – DeLoretto Plaza, Santa Barbara, California
- Characterization and Remediation of LNAPL at an Active Chemical Refinery - ICI, Teeside, UK

Perchlorate

- Assessment of the Effectiveness of Site Investigation and Remediation Activities, Investigation of Off-Site Groundwater Contamination, and Development of Remedial Programs (and Costs) at Perchlorate Release Sites in the South Basin Groundwater Protection Project (SBGPP) - Orange County Water District
- Hydrogeologic Investigation, Source Identification, Water Supply Well Impact Assessment, and Drinking Water Treatment for Perchlorate – City of Morgan Hill, California



Curriculum Vitae: Anthony Brown

December 2012

- Evaluation of the Fate and Transport of Perchlorate and NDMA Contamination and its Impact on Water Supplies in Rancho Cordova, California – Southern California Water Company
- Hydrogeologic Investigation, Water Supply Well Impact Assessment, Regulatory Assistance, and Responsible Party (RP) Oversight for Perchlorate Contamination – City of Gilroy, California
- Regulatory and Technical Assistance, RP Oversight and Review, Water Resource Impact Assessment for Perchlorate Contamination – City of Santa Clarita, California
- Design of a Groundwater Remediation Program for Chlorinated Solvent, Perchlorate and Other Contaminants Utilizing Existing Drinking Water Wells – San Gabriel Valley Water Company (SGVWC), San Gabriel Valley Superfund Site, California
- Evaluation of the Off-site Migration of Perchlorate and TCE Contamination from a Rocket Testing Facility in Simi Hills, California – City of Calabasas, County of Los Angeles
- Investigation of Potential Perchlorate Source Sites, Source Contribution, Contaminant Pathway Assessment, and Drinking Water Treatment – Fontana Water Company, West Valley Water District, Fontana, California
- Evaluation of Previous Environmental Investigations, Contaminant Transport and Remediation Options for Perchlorate and Solvent Contamination at the Stringfellow Acid Waste Disposal Pits in Glen Avon, California – Joint Underwriters

Hexavalent Chromium

- Investigation and Remediation of Hexavalent Chrome and TCE Contamination at the Los Angeles Academy (formerly Jefferson) Middle School, Los Angeles – Jefferson Site PRP Group
- Investigation and Remediation of Hexavalent Chromium and TCE Contamination at an Active Plating Facility in West Los Angeles – Confidential Client
- Hydrogeologic Investigation of Hexavalent Chromium Contamination in the Northern Area of the Central Basin in Los Angeles County – Water Replenishment (WRD)
- Investigation of TCE and Hexavalent Chrome Contamination at the Suva School in Montebello, California – Communities for a Better Environment
- Investigation of Fuel Oil LNAPL and Hexavalent Chromium Contamination at a Former Clay Products Manufacturing Facility in Fremont, California – Mission Clay Products
- Investigation and Remediation of Hexavalent Chromium, TCE, and Gasoline LNAPL Contamination at an Active Plating Facility in Santa Fe Springs California – Confidential Client

Other Projects

- Evaluation of Groundwater Conditions and Quality, and the Degree of Hydraulic Connection Between Groundwater Basins, as Part of a Water Rights Dispute – Confidential Client
- Negotiation of Private Agreements Between Water Utilities and RPs – City of Santa Monica, STPUD, City of Morro Bay, SGVWC, GOWC, City of Oxnard, OCDA
- Evaluation of Power Plant Intake and Outfall Structures on Fecal Coliform Plume Dynamics and Resulting Beach Closures, Huntington Beach, California – California Energy Commission



Curriculum Vitae: Anthony Brown

December 2012

- Investigation of Bacteria and Fecal Contamination in Groundwater Beneath the Downtown Area of Huntington Beach, California – City of Huntington Beach
- Investigation of the Source(s) and Transport of Enterococcus and Fecal Bacteria to the Near Shore Waters of Huntington Beach, California – City of Huntington Beach, County of Orange, Orange County Sanitation District (OCSD)
- Characterization and Remediation, Former Town Gas Sites - British Gas Properties, U.K.
- Development of Guidelines for Source Water Assessment Programs - State of California
- Aquifer Characterization, Contaminant Assessment, Slurry Wall Design and Installation, Soil Excavation and Water Treatment System Design - Port of Los Angeles, California

Professional History

aquilogic, Inc., CEO and Principal Hydrologist, 2011 to present.

exp, Executive Vice-President, Chief Business Development Officer, 2010 to 2011

WorleyParsons, Senior VP, Strategy & Development, 2008 to 2010.

WorleyParsons Komex, Regional Director, U.S. Operations, 2006 to 2008.

Komex Environmental Ltd., Chief Executive Officer, Principal Shareholder, Director, 1999 to 2005.

Komex•H2O Science•Inc., President and Principal Hydrologist, 1992 to 1999.

Remedial Action Corporation, Project Manager and Geohydrologist, 1989 to 1992.

Lanco Engineering, Project Manager, 1985 to 1987, and 1988.

Royal Geographical Society, Kosi Hills Resource Conservation Project, Nepal: Project Director, 1983 to 1985

Teaching

Anthony has recently taught the following classes:

- Environmental Aspects of Soil Engineering and Geology - a ten week course at the University of California, Irvine;
- Site Characterization and Remediation of Environmental Pollutants - two lectures as part of the course at Imperial College London;
- Methyl Tertiary Butyl Ether: Implications for European Groundwater - a one day seminar for the UK Environment Agency (UKEA);
- Successful Remediation Strategies – a two day course for the NGWA;
- Understanding Environmental Contamination in Real Estate, and one day class for the International Right-of-Way Association (IRWA);
- Project Development and the Environmental Process, a one day class for the IRWA;
- Environmental Awareness, a one day class for the IRWA; and
- Regional Fuels Management Workshop, a two-day workshop for the US Environmental Protection Agency (USEPA).



Curriculum Vitae: Anthony Brown
December 2012

Publications

In addition to his teaching experience, Anthony has prepared over 1000 written project reports, and has written, presented and published many articles regarding the following:

- Contamination of groundwater and drinking water supplies by fuel oxygenates, chlorinated solvents, rocket propellants, and metals
- Contaminant fate and transport in fractured or heterogeneous media
- The impact of oil field activities on the environment
- Source water assessment and protection
- Public health and toxicology
- Risk analysis and assessment
- Environmental economics
- General water resources and environmental issues

The following is a list of publications and presentations:

- M. Hagemann, A. **Brown**, and J. Klein, 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and to Treat Drinking Water Supplies Impacted by MTBE. NGWA, Conference on MTBE: Assessment, Remediation, and Public Policy, Orange, CA. June 2002
- M. Hagemann, A. **Brown**, and J. Klein, 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. NGWA, Conference on Litigation Ethics, and Public Awareness, Washington, D.C., August 2002
- Major, W., A. **Brown**, S. Roberts, L. Paprocki, and A. Jones, 2001. The Effects of Leaking Sanitary Sewer Infrastructure on Groundwater and Near Shore Ocean Water Quality in Huntington Beach, California. California Shore and Beach Preservation Association and California Coastal Coalition – Restoring The Beach: Science, Policy and Funding Conference. San Diego, California, November 8-10, 2001.
- Ross, S.D., A. Gray, and A. **Brown**, 2001. Remediation of Ether Oxygenates at Drinking Water Supplies and Release Sites. Can-Am 6th Annual Conference of National Groundwater Association Banff, Alberta, Canada. July 2001.
- Gray, A.L. and A. **Brown**, 2000. The Fate, Transport, and Remediation of Tertiary-Butyl-Alcohol (TBA) in Ground Water. Proceedings of the NGWA/API 2000 Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Remediation. Anaheim, November 14-17, 2000.
- Hardisty, P.E., J. Dottridge and A. **Brown**, 2000. MTBE in Ground Water in the United Kingdom and Europe. Proceedings of the NGWA/API 2000 Petroleum Hydrocarbons and Organic



Curriculum Vitae: Anthony Brown
December 2012

- Chemicals in Groundwater: Prevention, Detection, and Remediation. Anaheim, November 14-17, 2000.
- Brown, A., B. Eisen, W. Major, and A. Zawadzki, 2000.** Geophysical, Hydrogeological and Sediment Investigations of Bacterial Contamination in Huntington Beach, California. California Shore and Beach Preservation Association – Preserving Coastal Environments Conference. Monterey, California, November 2-4, 2000.
- Hardisty, P.E., G.M. Hall, A. **Brown** and H.S. Wheeler, 2000. Natural Attenuation of MTBE in Fractured Media. 2nd National Conference on Natural Attenuation in Contaminated Land and Groundwater. Sheffield, U.K., June 2000.
- Brown, A., 2000.** Treatment of Drinking Water Impacted with MTBE. Mealey's MTBE Conference. Marina del Rey, California. May 11-12, 2000.
- Brown, A., 2000.** Other Fuel Oxygenates in Groundwater. Mealey's MTBE Conference. Marina del Rey, California. May 11-12, 2000.
- Brown, A., 2000.** The Fate, Transport and Remediation of TBA in Groundwater. Mealey's MTBE Conference. Marina del Rey, California. May 11-12, 2000.
- Brown, A., 2000.** MTBE Contamination of the City of Santa Monica Water Supply: Recap. Mealey's MTBE Conference. Marina del Rey, California. May 11-12, 2000.
- Mooder, R.B., M.D. Trudell, and A. **Brown, 2000.** A Theoretical Analysis of MTBE Leaching from Reformulated Gasoline in Contact with Groundwater. American Chemical Society, Div. of Environmental Chemistry, 219th ACS National Meeting. San Francisco, March 26-30, 2000.
- Trudell, M.R., K.D. Mitchell, R.B. Mooder, and A. **Brown, 2000.** Modeling MTBE Transport for Evaluation of Migration Pathways in Groundwater. American Chemical Society, Div. of Environmental Chemistry, 219th ACS National Meeting. San Francisco, March 26-30, 2000.
- Brown, A., 1999.** How LUST Policy Lead to the Current MTBE Problem. Submitted for the Government Conference on the Environment. Anaheim, CA. August 1999.
- Trudell, M.R., K.D. Mitchell, R.B. Mooder and, A. **Brown, 1999.** Modeling MTBE transport for evaluation of migration pathway scenarios. In proceedings, 6th International Petroleum Environmental Conference, Houston TX, November 16-19, 1999. Integrated Petroleum Environmental Consortium, University of Tulsa, OK.
- Gray, A.L., A. **Brown, R.A. Rodriguez, 1999.** Treatment of a Groundwater Impacted with MTBE By-Products. In proceedings, 6th International Petroleum Environmental Conference, Houston TX, November 16-19, 1999. Integrated Petroleum Environmental Consortium, University of Tulsa, OK.
- Gray, A.L., A. **Brown, M.M. Nainan, and R.A. Rodriguez, 1999.** Restoring a Public Drinking Water Supply Contaminated with MTBE. In proceedings, 6th International Petroleum Environmental Conference, Houston TX, November 16-19, 1999. Integrated Petroleum Environmental Consortium, University of Tulsa, OK.
- Ausburn M.P., A. **Brown, D. A. Reid and S.D. Ross, 1999.** Environmental Aspects of Crude Oil Releases to the Subsurface. In proceedings, 6th International Petroleum Environmental



Curriculum Vitae: Anthony Brown
December 2012

- Conference, Houston TX, November 16-19, 1999. Integrated Petroleum Environmental Consortium, University of Tulsa, OK.
- Hardisty, P.E., A. Brown, and H. Wheeler, 1999. Using Economic Analysis to Support Remedial Goal Setting and Remediation Technology Selection. In proceedings, 6th International Petroleum Environmental Conference, Houston TX, November 16-19, 1999. Integrated Petroleum Environmental Consortium, University of Tulsa, OK.
- Brown, A., and J.J. Clark, 1999. MTBE: Air Today, Gone Tomorrow! California Environmental Law and Remediation Reporter. Argent Communications Group. Foresthill, CA. Volume 9 (2): pp 21 - 30.
- Brown, A., P.E. Hardisty, and H. Wheeler, 1999. The Impact of Fuel Oxygenates on Water Resources. A one-day course for the UK Environment Agency. London, UK. June 1999
- Brown, A., K.D. Mitchell, C. Mendoza and M.R. Trudell, 1999. Modeling MTBE transport and remediation strategies for contaminated municipal wells. Battelle In Situ and On-Site Bioremediation, Fifth International Symposium, San Diego, CA. April 19-22, 1999.
- Brown, A., 1999. LUST Policy and Its Part in the MTBE Problem. USEPA National Underground Storage Tank Conference. Daytona Beach, FL. March 15-17, 1999.
- Brown, A., T.E. Browne and R.A. Rodriguez, 1999. Restoration Program for MTBE Contamination of the City of Santa Monica Arcadia Well Field. Ninth Annual Conference on Soil and Groundwater Contamination, Oxnard, CA. March 1999.
- Brown, A., 1999. Moderator of a Panel Session - Judging Oil Spill Response Performance: The Challenge of Competing Perspectives. International Oil Spill Conference. Seattle, WA. March 8-11, 1999.
- Brown, A., 1999. MTBE: Asleep at the Wheel! Editorial in the Newsletter of the Los Angeles County Bar Association, Environmental Section. February 1999.
- Brown, A., J.S. Devinny, T.E. Browne and R.A. Rodriguez, 1998. Restoration of a Public Drinking Water Supply Impacted by Methyl *tertiary* Butyl Ether (MTBE) Contamination. Proceedings of the NGWA/API 1998 Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Remediation, November 11-13, 1998, Houston, TX.
- Brown, A., 1998. Petroleum and the Environment: A Consultants Perspective. USEPA Regional Fuels Management Workshop, November 3-4, 1998, Shell Beach, CA.
- Brown, A., 1998. How Much Does Remediation Really Cost? Presented at the Southern California Chapter of the Appraisal Institute, Summer Seminar Spectacular: Damages, Diminution and Mitigation. Anaheim, California, August 13, 1998.
- Brown, A., J.S. Devinny, A.L. Gray and R.A. Rodriguez, 1998. A Review of Potential Technologies for the Remediation of Methyl *tertiary* Butyl Ether (MTBE) In Groundwater. International Petroleum and the Environment Conference, Albuquerque, NM. October 1998.
- Brown, A., A.L. Gray, and T.E. Browne, 1998. Remediation of MTBE at Leaking Underground Storage Tank (LUST) Sites. The UST Clean-up Fund Conference, Austin, TX. June 22, 1998.



Curriculum Vitae: Anthony Brown
December 2012

- Brown, A., J.R.C. Farrow, R.A. Rodriguez, and B.J. Johnson, 1998.** Methyl *tertiary* Butyl Ether (MTBE) Contamination of the City of Santa Monica Drinking Water Supply: An Update. Proceedings of the National Ground Water Association (NGWA) Southwest Focused Conference: MTBE and Perchlorate, June 3-5, 1998, Anaheim, California.
- Patterson, G, B. Groveman, J. Lawrence, and A. Brown, 1998.** The Legal Implications, Claims, and Courses of Action for Water Purveyors Impacted by MTBE and Perchlorate. Proceedings of the NGWA Southwest Focused Ground Water Conference: Discussing the Issue of MTBE and Perchlorate in Ground Water. June 3-4, 1998, Anaheim, California.
- Clark, J.J., A. Brown, And R.A. Rodriguez, 1998.** The Public Health Implications of MTBE and Perchlorate in Water: Risk Management Decisions for Water Purveyors. Proceedings of the NGWA Southwest Focused Ground Water Conference: Discussing the Issue of MTBE and Perchlorate in Ground Water. June 3-4, 1998, Anaheim, California.
- Brown, A., J.S. Devinny, M.K. Davis, T.E. Browne, And R.A. Rodriguez, 1997.** A Review of Potential Technologies for the Treatment of Methyl *tertiary* Butyl Ether (MTBE) in Drinking Water. Proceedings of the NGWA/API 1997 Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Remediation, November 12-14, 1997, Houston, TX.
- Brown, A., J.R.C. Farrow, R.A. Rodriguez, B.J. Johnson And A.J. Bellomo, 1997.** Methyl *tertiary* Butyl Ether (MTBE) Contamination of the City of Santa Monica Drinking Water Supply. Proceedings of the National Groundwater (NGWA) and American Petroleum Institute (API) 1997 Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Remediation, November 12-14, 1996, Houston, Texas.
- Brown, A., J.S. Devinny, M.K. Davis, T.E. Browne, And R.A. Rodriguez, 1997.** A Review of Treatment Technologies for Methyl *tertiary* Butyl Ether (MTBE) in Drinking Water. Proceedings of the American Chemical Society (ACS) Conference on Chemistry and Spectroscopy, October 1997, Irvine, California.
- Brown, A., J.S. Devinny, T.E. Browne and D. Chitwood, 1997.** A Review of Alternative Technologies for the Removal of MTBE from Drinking Water. Association of California Water Agencies (ACWA) Workshop on MTBE, March 13, 1997, Ontario Airport Hilton, California.
- Brown, A., 1997.** Methyl *tertiary* Butyl Ether (MTBE) in Groundwater and its Impact on the City of Santa Monica Drinking Water Supply. California Groundwater Resource Association (GRA), January 22, 1997, Wyndham Garden Hotel, Costa Mesa, California.
- Gray, A.L., A. Brown, B.J. Moore and T.E. Browne, 1996.** Respiration Testing for Bioventing and Biosparging Remediation of Petroleum Contaminated Soil and Groundwater. NGWA Outdoor Action Conference, Las Vegas, NV, May, 1996.
- Brown, A. and P.E. Hardisty, 1996.** Use of Technical and Economic Analyses for Optimizing Technology Selection and Remedial Design: Examples from Hydrocarbon Contaminated Sites. Sixth West Coast Conference on Contaminated Soils and Groundwater, AEHS, March 1996.
- Farrow, J.R.C., A. Brown, W. Burgess, R.E. Payne, 1995.** High Vacuum Soil Vapor Extraction as a Means of Enhancing Contaminant Mass Recovery from Groundwater Zones of Low



Curriculum Vitae: Anthony Brown

December 2012

- Transmissivity. Accepted for Proceedings of the Petroleum Hydrocarbons and Organic Chemicals in Groundwater, API/NGWA Conference. Houston, TX. November, 1995.
- Ausburn, M.P., **A. Brown**, M. Brewster, and P. Caloz, 1995. Use of Borehole Terrain Conductivity Logging to Delineate Multiple Ground Water Bearing Zones and Map Alluvial Fan Facies. California Groundwater Resource Association (GRA), Annual Conference, November, 1995, Costa Mesa, California.
- Hardisty, P.E., S.D. Ross, F.B. Claridge and **A. Brown**, 1995. Technical and Economic Analysis of Remedial Techniques for LNAPL in Fractured Rock. International Association of Hydrogeologists (IAH), October, 1995, Solutions 95 Conference, Calgary, Canada.
- Croft, R.G., **A. Brown**, P. Johnson, and J. Armstrong, 1994. Tracer Gas Use in Soil Vapor Extraction and Air Sparge Pilot Tests: Case Studies. HMRCI Superfund XV Conf. Proceedings, Washington D.C, November, 1994.
- Bauman, P.B., M. Brewster and **A. Brown**, 1994. Borehole Logging as an Aid to Hydrogeologic Characterization of Leaking Underground Storage Tank (LUST) Sites. Proceedings from the National Groundwater Association (NGWA), 8th National Outdoor Action Conference and Exposition, Minneapolis, Minnesota. May, 1994.
- Bauman, P.B., **A. Brown**, M. Brewster and M. Lockhart, 1994. The use of Borehole Geophysics in the Characterization of Both Vadose and Saturated Zone Lithologies at LUST Sites. Proceedings from the USEPA Technology Transfer at LUST Sites Conference, Urbana, Illinois. May, 1994.
- Bauman, P.B., J. Sallomy, **A. Brown** and M. Brewster, 1994. Unconventional Applications of Terrain Conductivity Logging to Groundwater Investigations. Proceedings of the Symposium on the Application of Geophysics at Environmental and Engineering Projects (SAGEEP), Boston, Massachusetts, 1994.
- Brown, A.**, R.E. Payne and P. Perlwitz, 1993. Air Sparge Pilot Testing at a Site Contaminated with Gasoline. Proceedings of the Petroleum Hydrocarbons and Organic Chemicals in Groundwater: Prevention, Detection, and Restoration. API/NGWA Conference, Houston, Texas. November 1993.
- Brown, A.**, 1991. Air Permeability Testing for Vapor Extraction. Conference Proceedings; Petroleum Hydrocarbon Contaminated Soil, San Diego, California. March 1991.
- Wheater, H., B. Beck, **A. Brown** and S. Langan, 1991. The Hydrological Response of the Allt a' Mharcaidh Catchment, Inferences from Experimental Plots. Journal of Hydrology, Vol. 123; pp 163-1990.

Anthony has also briefed the following on the impact of fuel oxygenates, chlorinated solvents, rocket propellants, metals, oil field activities, and bacteria on water quality:

- U.S. Environmental Protection Agency (USEPA) staff (Region IX and headquarters), including Assistant Administrators
- White House Officials



Curriculum Vitae: Anthony Brown
December 2012

- US Senators and Representative
- State Senators and Assembly Members
- State regulators
- Local officials (Mayors, council and board members, City attorneys, etc.)
- Independent Commissions
- Professional bodies (ABA, ACS, ACWA, AEHS, AGWA, NGWA, GRA, etc.)
- Academic institutions and many other organizations